

REMARKS

This is in response to the Office Action mailed on February 13, 2008.

Claims 1, 12, 14 and 27 are currently amended; claims 13, 26, 28, and 39 have previously been canceled; and no claims are currently added. As a result, claims 1-12, 14-25, 27 and 29-38 are now pending and subject to examination in this application.

Information Disclosure Statement

Applicant submitted an Information Disclosure Statement and a 1449 Form on November 19, 2007 that does not fully comply with the requirements of 37 CFR 1.98 because it lacks a legible copy (i.e., the entire publication) of each foreign patent. Applicant has submitted a revised Information Disclosure Statement and a 1449 Form. Applicant respectfully requests that initialed copies of the 1449 Forms be returned to Applicants' Representatives to indicate that the cited references have been considered by the Examiner.

Claim Objections

Claim 1 was objected to because of the following informalities:

The Office Action contends that in claim 1, "frequency" on line 5 should probably be --is more frequent--(see because "...fast scanning requires more frequent bias pulses..." in lines 12 and 13 on pg. 8 of the specification). The Office Action further contends that "prior" in line 6 of claim 1 is vague since it is unclear what the single pulses are prior to.

Regarding the objection to "frequency" in claim 1, line 5, the Applicant respectfully directs the attention of the Examiner to FIG. 5 of the specification that clearly indicates a frequency of pulses. Further, page 9, line 5 of the specification refers to a bias pulse repetition frequency. The Applicant has therefore made no change to "frequency" in claim 1, and respectfully requests the withdrawal of the objection.

Regarding the objection to "prior" in claim 1, the claim has been amended, thereby rendering the objection moot..

§112 Rejection of the Claims

Claims 1-12, 27 and 29-38 were rejected under 35 USC § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Applicant wishes to thank the Examiner for his thoughtful analysis. The claims have been amended, and the rejections are believed moot.

§102 Rejection of the Claims

Claims 14-17, 20, 22-25, 27, 29, 33-35 and 38 were rejected under 35 USC § 102(b) as being anticipated by Wood et al. (U.S. 5,675,149) and incorporated by reference U.S. Patent 5,420,419 (Wood). This rejection is respectfully traversed. Independent claims 14 has been amended to include the phrase “such that a resulting temperature in each of the microbolometers in the array due to such applying of N bias pulses is substantially uniform during the frame time”. Support for the amendment is found at least on page 9, lines 22-24, and at least at 530 in FIG. 5. The word “substantially” in this case is not believed indefinite due to the illustration of a substantially uniform temperature curve 530 in FIG. 5, and a comparison to the prior art temperature swings of approximately 2 degrees C. Further, one of skill in the art would clearly understand how to make and use a device that provided substantially uniform temperature in the context of a microbolometer array used to sense infrared radiation.

Claim 27 was also amended to indicate that the temperature varies less than one degree Celsius and to clarify that the reduction in noise is compared to a single pulse in a frame time, and that it is a function of the duration and frequency of the pulses as described in the application on page 8, line 21 to page 9, line 8. This functional language clearly imparts physical limitations on the timing circuit, as the time circuit must be operable to produce the pulses to accomplish the function. It is not merely a recitation of intended use, as the function described actually places structural limits on the timing circuit which should be considered for patentability of claim 27 and dependent claims.

§103 Rejection of the Claims

Claims 1, 2, 7-12, 21 and 34 were rejected under 35 USC § 103(a) as being unpatentable over Wood et al. (U.S. 5,675,149) and incorporated by reference U.S. Patent 5,420,419 (Wood) in view of Duvall, III (U.S. 5,258,619). This rejection is respectfully traversed.

Claim 1 has been similarly amended, and in addition, indicates that the duration of a pulse is $1/N$ times that of a single pulse suitable for reading an array. Support for this element is found at least on Page 8, lines 21-28, and in FIG. 5.

Duvall, III does not describe any sort of array, nor any type of frame time for sweeping an array. It appears to refer to a single photodetector and the use of different types of pulses to reduce heating. This really adds nothing more than Wood et al., as Wood et al. also provided a single pulse during a frame time to obtain an image from an array of microbolometers. The present invention is an improvement to Wood et al. that is not suggested by Duvall, III, as providing pulses to microbolometers was already known. What was not known, nor easily derivable from the prior art, was to increase the frequency of the pulses and at the same time reduce the duration of the pulses. This provided the ability to reduce the temperature variation significantly, and at the same time, reduce noise.

Claim 12 has been amended to indicate that the temperature varies less than one degree Celsius, as seen in FIG. 5.

Claims 3-5 were rejected under 35 USC § 103(a) as being unpatentable over Wood et al. (U.S. 5,675,149) and incorporated by reference U.S. Patent 5,420,419 (Wood) and Duvall, III (U.S. 5,258,619) as applied to claim 2 above, and further in view of Applicant Admitted Prior Art.

The Applicant respectfully submits that claims 3-5 depend from claim 1, and are believed allowable for at least the same reasons.

Claim 6 was rejected under 35 USC § 103(a) as being unpatentable over Wood et al. (U.S. 5,675,149) and incorporated by reference U.S. Patent 5,420,419 (Wood) and Duvall, III (U.S. 5,258,619) in view of Applicant Admitted Prior Art as applied to claim 5 above, and further in view of Thiede et al. (U.S. 5,129,595).

The Applicant respectfully submits that claim 6 is also believed allowable for at least the same reasons as claim 1.

Claims 18, 19 and 30-32 were rejected under 35 USC § 103(a) as being unpatentable over Wood et al. (U.S. 5,675,149) and incorporated by reference U.S. Patent 5,420,419 (Wood) in view of Thiede et al. (U.S. 5,129,595).

These claims depend from independent claims that are now believed allowable, and the Applicant respectfully submits that they should be allowable for at least the same reasons as the claims from which they depend.

RESERVATION OF RIGHTS

In the interest of clarity and brevity, Applicant may not have addressed every assertion made in the Office Action. Applicant's silence regarding any such assertion does not constitute any admission or acquiescence. Applicant reserves all rights not exercised in connection with this response, such as the right to challenge or rebut any tacit or explicit characterization of any reference or of any of the present claims, the right to challenge or rebut any asserted factual or legal basis of any of the rejections, the right to swear behind any cited reference such as provided under 37 C.F.R. § 1.131 or otherwise, or the right to assert co-ownership of any cited reference. Applicant does not admit that any of the cited references or any other references of record are relevant to the present claims, or that they constitute prior art. To the extent that any rejection or assertion is based upon the Examiner's personal knowledge, rather than any objective evidence of record as manifested by a cited prior art reference, Applicant timely objects to such reliance on Official Notice, and reserves all rights to request that the Examiner provide a reference or affidavit in support of such assertion, as required by MPEP § 2144.03. Applicant reserves all rights to pursue any cancelled claims in a subsequent patent application claiming the benefit of priority of the present patent application, and to request rejoinder of any withdrawn claim, as required by MPEP § 821.04.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 371-2140 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date

May 13, 2008

By

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 13th day of May 2008.

Name

Signature